

Diet and exercise work, no matter how young or old you are.



Skeleton keys

The secret to having strong bones later lies in the choices you make now.

It's easy to ignore your bones when you're young and feeling strong. But consider this: It just won't do to wait until you're 50 to start thinking about them.

That's because your risk for osteoporosis (literally, porous bones) hinges on how much bone mass you accrue in your teens, 20s and early 30s and how quickly you lose it later on. Both are factors you have some control over.

Bones are living material, constantly building and breaking down in a process called remodeling; physiologists estimate we create 11 skeletons over the course of our lifetime! When we're young, we form new bone faster than we lose old bone,

achieving peak density around age 25 to 30, at which point we begin to lose slightly more than we gain. The loss rapidly speeds up post-menopause, when estrogen levels drop sharply (estrogen helps lay down new bone). The upshot: Half of American women older than 50 will fracture a hip, wrist or vertebra due to weakened bones, and 1 in 5 will develop full-blown osteoporosis.

Until very recently, bisphosphonate drugs (Fosamax, Actonel, Boniva) were considered the holy grail for preventing and treating osteoporosis. However, mounting evidence suggests that taking them for longer than five years might actually *weaken* your bones and cause spontaneous fractures and a rare but very serious jawbone disorder (osteonecrosis), as well as digestive

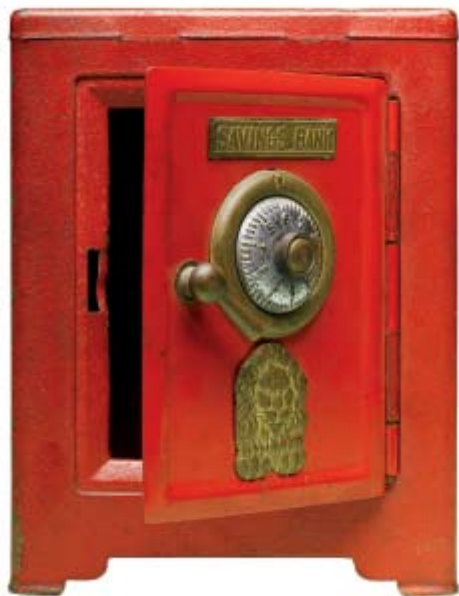
problems. And dairy foods are no longer considered the panacea they once were: Study after study shows no decrease in fracture risk with higher consumption. Calcium supplements are also losing their status as a cure-all.

The good news: It's never too late—or too early—to adopt simple lifestyle changes that will strengthen your skeleton and help delay bone breakdown. “How your bones land post-menopause is hugely dependent on how you take care of your body during your childbearing years,” says Amy J. Lanou, Ph.D., senior nutrition scientist for the nonprofit Physicians Committee for Responsible Medicine and co-author of *Building Bone Vitality* (McGraw Hill). “Just as with heart disease or type II diabetes, it's the daily insults that accumulate over the years into osteoporosis.”

If you've already been diagnosed with osteoporosis or have several risk factors for developing it, it's time to seek medical attention. (See “Sticks and Stones,” at right.) If not, start building wealth in your bone bank by making frequent deposits based on this advice from integrative health experts.

The better-bones diet >>

AVOID CALCIUM OVERLOAD Official recommendations encourage women between the ages of 19 and 50 to get 1,000 milligrams of calcium a day and women older than 50 to get 1,200 milligrams. Lanou suggests lowering that to 500 to 800 milligrams, preferably from dairy-free food sources (see next item). Lanou explains that a higher calcium intake is unnecessary and, if it comes from supplemental sources, may cause constipation and negatively impact the absorption,



“Banking” bone when you're young will pay off later.

Drinking more than 7 ounces of alcohol a week can weaken your skeleton.



Sticks and stones...

...may break your bones, but these risk factors can really hurt you.

- ▶ White or Asian
- ▶ Petite frame
- ▶ Low body weight or BMI <20
- ▶ Family history of osteoporosis on your mother's side
- ▶ Onset of menstruation after age 15 or menopause before age 40
- ▶ History of an eating disorder or skipped periods due to low body fat
- ▶ Smoking, past or current
- ▶ Heavy alcohol use
- ▶ Certain health problems, including type I diabetes, rheumatoid arthritis, and celiac or thyroid disease, can increase your risk, as can drugs such as blood-thinning and seizure medications, steroids like prednisone, acid reflux treatments like Prilosec and Nexium, and Depo-Provera birth control.

production or metabolism of other nutrients.

A large Swedish study reported in 2011 in the *British Medical Journal* found that for the average woman, 700 to 800 milligrams of calcium a day is the range beyond which it appears to stop increasing bone density. Additional recent studies have also linked taking 1,000 milligrams or more of calcium supplements daily with an increased cardiovascular disease risk in women.

DON'T DEPEND ON DAIRY Dairy foods—cheese and ice cream in particular—are highly acidic, but the body prefers a slightly alkaline pH; to neutralize the acidity from dairy, your body pulls calcium from the bones. Lanou points out that hip fracture rates are highest

where calcium intake from dairy foods is highest, including in the U.S. and Northern European countries. Better calcium sources include leafy green vegetables, broccoli, almonds, beans and sesame seeds.

“If you were building a wall, calcium is the bricks, but vitamin D, magnesium and more than a dozen other nutrients are the mortar,” Lanou says. An ounce of almonds, a cup of raw kale and a can of salmon (with bones), eaten throughout the day to maximize absorption, will give you 800 milligrams of calcium along with those and other bone-building nutrients.

PILE ON THE PRODUCE Cultivating a bone-friendly diet also means limiting acidic meat, sugar, sodas, alcohol and packaged products while eating more alkaline foods like fruits and vegetables. Shoot for six to nine daily servings. Calcium is best absorbed from Brussels sprouts, kale, broccoli, and turnip and mustard greens (51 percent to 64 percent absorption), then supplements and dairy foods (around 30 percent each). Besides keeping your blood alkaline, you’ll reap extra benefits from the other bone-building compounds in these foods, including magnesium, phosphorus and vitamin K.

SELECT THE RIGHT SOY According to Beth Reardon, M.S., R.D., L.D.N., director of integrative



Brussels sprouts are superstar calcium sources.

nutrition at Duke Integrative Medicine in Durham, N.C., soy is probably more beneficial for building bone and/or slowing bone loss than it is for treating osteoporosis. She discourages taking soy supplements because they may impact cancer risk for women with certain tumor receptors and they don’t contain the other nutrients and antioxidants found in whole soy foods. Instead, Reardon advises choosing organic, non-GMO soy in the form of ¼ cup of dry roasted edamame or 3 ounces of tempeh daily; these are two of the least processed options and thus retain more of the health benefits soy has to offer.

STEER CLEAR OF SALT Sodium increases calcium loss in urine; cap your intake at 2,300 milligrams a day (the equivalent of 1 teaspoon). If you’re older than 51 or have high blood pressure, stick to less than 1,500 milligrams a day.

DIG THOSE DRIED PLUMS A study published in the *British Journal of Nutrition* in 2011 found that women who ate about eight to 10 prunes a day had significantly higher bone mineral density in their forearms and spines compared with those who ate dried apples. Prunes provide boron and potassium, two elements that help suppress the breakdown of bone.

CAP THE CAFFEINE Coffee is acidic and caffeine impairs calcium absorption, so limit

your intake to no more than 2 cups per day. Even better, switch to green tea: Reardon notes that it contains flavonoids, compounds that help inhibit bone breakdown.

Exercise for a stronger skeleton >>

GET ON YOUR FEET Weight-bearing activities—from walking and running to jump-roping and dancing—are some of the most efficient ways to build bone density. “They place a higher load on your muscles, tendons and bones, which respond by getting stronger,” explains Nicholas DiNubile, M.D., a clinical assistant professor of orthopedic surgery at the University of Pennsylvania and author of *FrameWork: Your 7 Step Program for Healthy Muscles, Bones & Joints* (Rodale). Weightlessness is the reason that astronauts lose up to 30 percent of their bone mass in four to six months in space. And zero-impact activities like bicycling and swimming don’t build bone: One study found that competitive male cyclists actually had lower bone density than nonathletes.

PUMP IRON Strength training is the best kind of weight-bearing exercise. “It gives you the best bang for your buck,” DiNubile says. Be sure to log at least two weight-lifting sessions per week,



Lifting weights beefs up your bones along with your muscles.

each lasting long enough (45 minutes to an hour) to target all of your major muscle groups and core. Moves that utilize your own body weight, like push-ups and lunges, work, too.

TAKE UP TAI CHI Several studies have demonstrated that tai chi slows bone loss. It’s also been shown to decrease production of the inflammatory stress hormone cortisol, a steroid. “High levels of steroids over time can increase the risk of osteoporosis,” says David Rakel, M.D., director of the University of Wisconsin-Madison School of Medicine and Public Health’s Integrative Medicine Program.

Bone up with supplements >>

CHOOSE THE RIGHT CALCIUM

If you're not getting 500 to 800 milligrams of calcium a day from foods, taking a supplement could be a good idea. But think of it as insurance, not your primary source. Reardon suggests choosing a supplement that also includes vitamin K, potassium and boron.

Try: Jarrow Ultra Bone Up (\$32 for 120 tablets; drugstore.com). If you are older than 60, go with calcium citrate over calcium carbonate and take no more than 800 milligrams a day, split into two smaller doses to enhance absorption. **Try:** Pure Encapsulation Calcium Citrate (\$18 for 180 capsules; pharmaca.com).

DON'T BE D-FICIENT Calcium needs vitamin D, which is produced by the body when exposed to sunlight, to function properly. But our indoor lifestyles and sunscreen use have led to a mass deficiency. Rakel suggests getting a blood test and supplementing accordingly. **Try:** Source Naturals D-3 (\$5 for 200 tablets; vitaminshoppe.com). Few foods provide vitamin D, but cod, sockeye salmon and Sun Bella UV-B light-boosted mushrooms can help, says Rakel, who advises against eating too many vitamin D-fortified dairy foods because many are high in saturated fat, contain hormones and promote inflammation.

MINERALIZE WITH MAGNESIUM Legumes, nuts, whole grains and vegetables are rich in this element that enhances bone mineralization, but it can be hard to get all you need from food. Rakel recommends



Bicycling is a bust as a bone-builder.

taking 400 to 800 milligrams a day of magnesium glycinate, which is less likely than other forms to cause side effects such as diarrhea. Take your calcium, which can interfere with magnesium absorption, in the morning; and your magnesium, which is a calming mineral, at night. **Try:** Solaray Magnesium Glycinate 400 (\$24 for 180 tablets; affordablesolaray.com).

TRY STRONTIUM European studies show that women who added strontium ranelate to their bone-building program slashed their risk of fracture by 49 percent in the first year. Its sister compound, strontium citrate, is available in the U.S.; Rakel suggests taking 2,000 milligrams a day. **Try:** Nature's Life Strontium (\$14 for 60 tablets; iherb.com) ✕

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Take the stairs rather than the elevator to strengthen your hips and avoid fractures.

